

B. Clean Version Per 37 CFR 1.121

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25 A method for detecting the presence of a nerve adjacent the distal end of at least one probe or surgical tool, comprising:

- A1**
- (a) emitting a stimulus pulse from an electrode disposed on a probe or surgical tool;
 - (b) detecting neuro-muscular responses to the stimulus pulse in at least one of a plurality of spinal nerves; and
 - (c) concluding that the electrode disposed on the probe or surgical tool is positioned adjacent to a first spinal nerve when the neuro-muscular response detected in the first spinal nerve is detected as a current intensity level less than or equal to the neuro-muscular response onset value of the first spinal nerve.

16. The method of claim 15, wherein the stimulus pulse is emitted from an electrode disposed on the distal end of the at least one probe or surgical tool.

18. The method of claim 15, wherein emitting a stimulus pulse from a probe or surgical tool comprises:

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introducing said at least one probe or surgical tool towards the patient's spine from a generally lateral direction.

22. The method of claim 15, wherein, detecting neuro-muscular responses to the stimulus pulse in each of the plurality of spinal nerves comprises:

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detecting the neuro-muscular responses at a plurality of distally spaced apart myotome locations corresponding to each of the spinal nerves.

23. The method of claim 15, further comprising:

repeating the method of claim 15, while the current intensity level of the electrical stimulus pulse is varied over time.

24. The method of claim 23, wherein the current intensity level of the stimulus pulse is varied incrementally.

25. The method of at least one of claims 23 and 24, wherein the current intensity level of the stimulus pulse is increased over time.

26. The method of claim 15, wherein, the plurality of spinal nerves comprise: nerves exiting from successive vertebrae.

30. The method of claim 15, wherein the method of claim 1 is performed in a repeating sequence.

31. The method of claim 15, wherein the method of claim 1 is repeated automatically.

32. The method of claim 30, wherein the method of claim 15 is repeated under operator control.

33. The method of claim 15, further comprising:
visually indicating to an operator the current intensity of the stimulus pulse which elicits a neuro-muscular response in each of the plurality of spinal nerves.

34. The method of claim 33, further comprising:
repeating the method of claim 15, thereby detecting and measuring sequential sets of neuro-muscular responses for each of the plurality of spinal nerves; and
simultaneously visually displaying to an operator the measured levels of at least two sets of the neuro-muscular responses for each of the plurality of spinal nerves.

35. The method of claim 15, further comprising:
visually indicating to an operator that a spinal nerve is positioned near the distal end of the at least one probe or surgical tool.

36. The method of claim 15, further comprising:
audibly indicating to an operator that a spinal nerve is positioned near the distal end of the at least one probe or surgical tool.

37. The method of claim 36, wherein audibly indicating comprises:
sounding an alarm as the nerve is approached.

38. The method of claim 36, further comprising:
varying the volume of the alarm as the nerve is approached.

39. The method of claim 37, further comprising:
varying the frequency of the alarm as the nerve is approached.

40. The method of claim 15, wherein the at least one probe or surgical tool
comprises:
at least one probe or surgical tool dimensioned to be introduced generally laterally
towards the patient's spine.
